

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. L5733
ABANDONED RAILROAD
OVER THE
MISSISSIPPI RIVER
DISTRICT 5 - HENNEPIN COUNTY



PREPARED FOR THE
MINNESOTA DEPARTMENT OF TRANSPORTATION
BY
COLLINS ENGINEERS, INC.

JOB NO. 3512

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected at Bridge No. L5733, the East and West Piers, were found to be in good condition with no defects of structural significance observed. The stone masonry was in good condition with only minor hairline cracks observed in the mortar joints at random locations. The top of the footing at the West Pier was exposed with 4 inches of vertical face exposed at the upstream end. The channel bottom appeared stable with no significant scour observed.

INSPECTION FINDINGS:

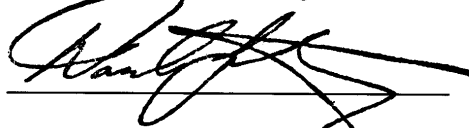
- (A) The top of the footing at the West Pier was exposed from the midpoint along the west face, around the upstream nose, and to the upstream quarter point along the east face, with 4 inches of vertical face exposure detected at the upstream end.
- (B) Overall, the stone masonry was in good condition with only minor hairline cracks observed in the joints at random locations.
- (C) A light accumulation of steel debris was observed scattered on the channel bottom around both piers.

RECOMMENDATIONS:

- (A) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Daniel G. Stromberg

A large, stylized handwritten signature of Daniel G. Stromberg in black ink, written over a horizontal line.

Date 6/30/2004 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.

A large, stylized handwritten signature of Daniel G. Stromberg in black ink, written over a horizontal line.

Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: L5733

Feature Crossed: The Mississippi River

Feature Carried: Abandoned Railroad

Location: District 5 - Hennepin County

Bridge Description: The superstructure consists of a steel deck truss and is supported by two stone masonry block piers for the portion of bridge across the waterway. Design plans were not made available, so footing design information is unknown.

2. INSPECTION DATA

Professional Engineer/Team Leader: Shirley M. Walker, P.E.

Dive Team: Michelle D. Koerbel, Clayton G. Brookins

Date: October 1, 2002

Weather Conditions: Sunny, " 70EF

Underwater Visibility: " 2 feet

Waterway Velocity: " 1.5 f.p.s.

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: East and West Piers.

General Shape: The piers consist of an oblong rectangular shaft with pointed noses constructed of stone masonry blocks. The type of support for the rectangular pier footings is unknown.

Maximum Water Depth at Substructure Inspected: Approximately 18.3 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the stone masonry step in the shaft at the south end of the East Pier.

Water Surface: The waterline was approximately 12.2 feet below reference.
Assumed Waterline Elevation = 87.8.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 7

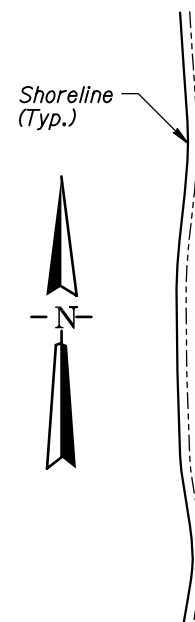
Item 61: Channel and Channel Protection: Code 6

Item 92B: Underwater Inspection: Code B/10/02

Item 113: Scour Critical Bridges: Code G/02

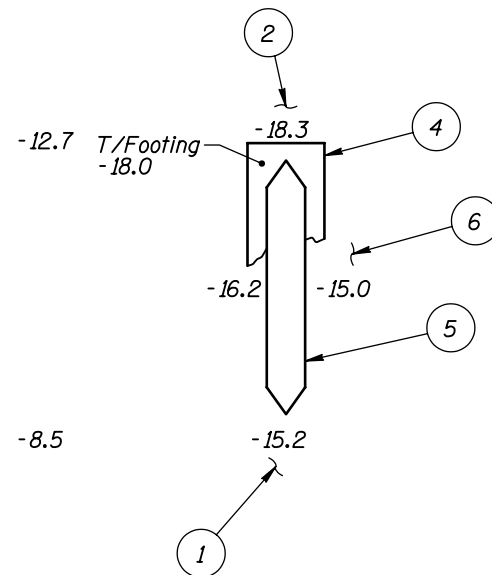
Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

_____ Yes X No



-7.5

-3.5



-12.7 T/Footing
-18.0

-8.5

-14.0

-14.0

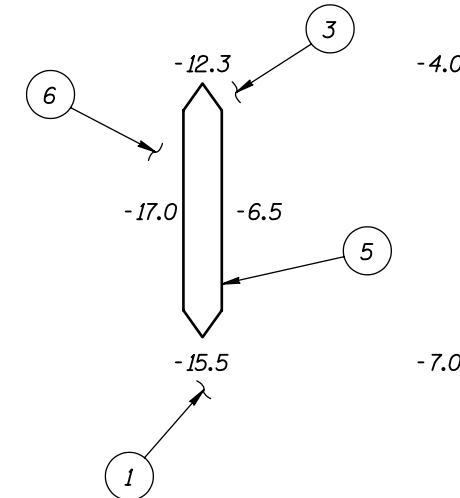
Flow
Mississippi River
-14.0

-14.5

West Pier

-14.5

-14.0



East Pier

SOUNDING PLAN

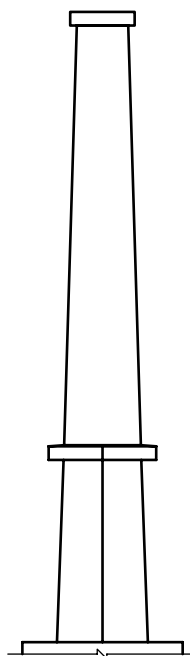
INSPECTION NOTES:

- 1 The channel bottom consisted of sand infilling at the downstream end of both piers with up to 1 foot of probe rod penetration.
- 2 The channel bottom consisted of riprap from 1 to 2 feet in diameter at the upstream nose and 6 to 8 inch diameter riprap along both sides of the West Pier.
- 3 The channel bottom consisted of riprap from 1 to 4 feet in diameter at the upstream nose and 6 to 8 inch riprap along both sides of the East Pier.
- 4 The top of the footing was exposed from the midpoint along the west face, around the upstream nose, and to the upstream quarter point along the east face with 4 inches of vertical face detected at the upstream end.
- 5 The stone masonry was in good condition with minor hairline cracks observed in the joints at random locations.
- 6 A light accumulation of steel debris was observed scattered on the channel bottom around both piers.

GENERAL NOTES:

1. The East and West Piers were inspected underwater.
2. At the time of inspection on October 1, 2002, the waterline was located approximately 12.2 feet below the top of the stone masonry step in the shaft at the downstream end of the East Pier. Since design drawings were not available a reference elevation of 100.0 was assumed. Based on the assumed reference the waterline elevation was 87.8.
3. Soundings indicate the water depth at the time of inspection and are measured in feet.
4. Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.

Legend
-5.2 Sounding Depth from Waterline (10/1/02)



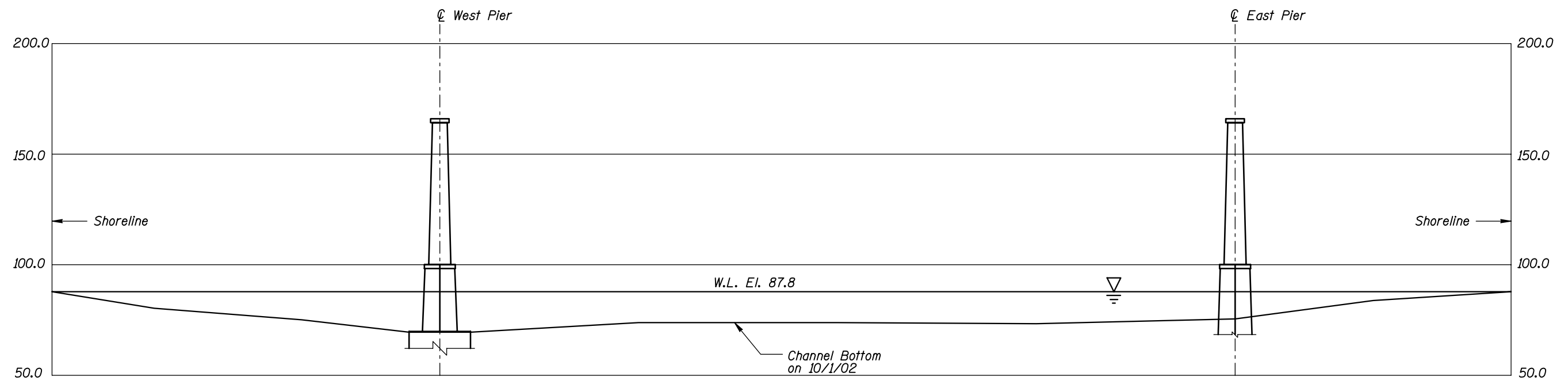
TYPICAL END VIEW OF PIERS

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION

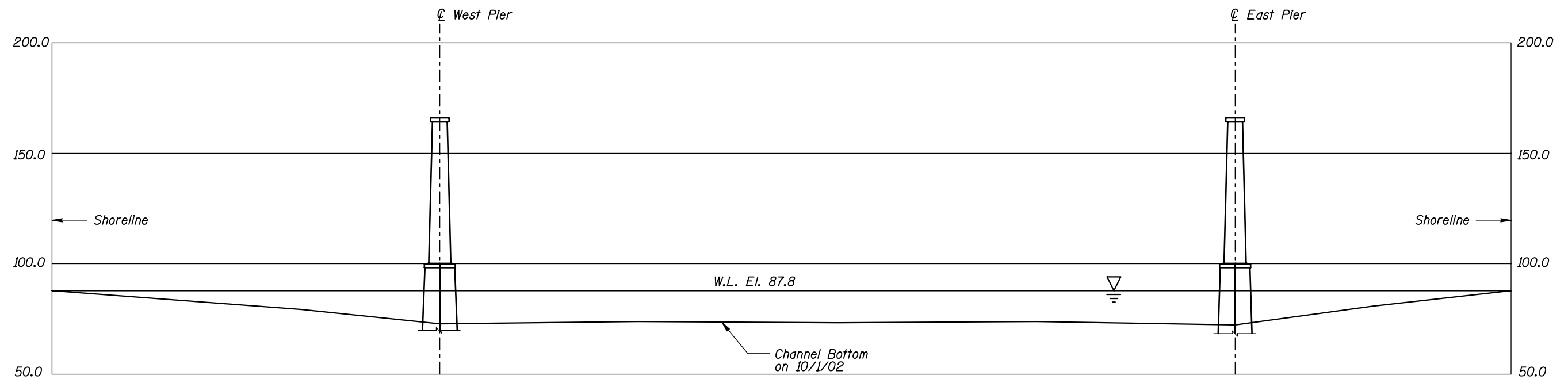
STRUCTURE NO. L5733
OVER THE MISSISSIPPI RIVER
DISTRICT 5, HENNEPIN COUNTY

INSPECTION AND SOUNDING PLAN

Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: OCT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606	Scale: NTS
Code: 3512L5733	(312) 704-9300	Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:
Refer to Figure 1 for General Notes.

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION		
STRUCTURE NO. L5733 OVER THE MISSISSIPPI RIVER DISTRICT 5, HENNEPIN COUNTY		
UPSTREAM AND DOWNSTREAM FASCIA PROFILES		
Drawn By: PRH	COLLINS ENGINEERS, INC.  300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Date: OCT. 2002
Checked By: MDK		Scale: NTS
Code: 3512L5733		Figure No.: 2



Photograph 1. Overall View of the Structure, Looking South.



Photograph 2. View of East Pier, Looking Northeast.



Photograph 3. View of West Pier, Looking Southeast.

INSPECTORS: Collins Engineers, Inc. DATE: October 1, 2002

ON-SITE TEAM LEADER: Shirley M. Walker, P.E.

BRIDGE NO: L5733 WEATHER: Sunny, " 70E F

WATERWAY CROSSED: The Mississippi River

DIVING OPERATION: X SCUBA SURFACE SUPPLIED AIR

OTHER

PERSONNEL: Michelle D. Koerbel, Clayton G. Brookins

EQUIPMENT: Scuba, Sounding Pole, Camera, u/w Light, Scraper, Probe Rod, Lead Line

TIME IN WATER: 3:50 P.M.

TIME OUT OF WATER: 4:15 P. M.

WATERWAY DATA: VELOCITY " 1.5 f.p.s.

VISIBILITY " 2 feet

DEPTH 18.3 feet maximum at the West Pier

ELEMENTS INSPECTED: East and West Piers

REMARKS: Overall, substructure units inspected were in good condition with no structurally significant defects observed. Minor hairline cracks were observed in the mortar joints at random locations. The top of the footing at the West Pier was exposed from the midpoint along the west face, around the upstream nose, and to the upstream quarter point along the east face, with up to 4 inches of vertical face exposure at the upstream end. The channel bottom appeared stable with no significant scour, and with steel construction debris scattered around both piers.

FURTHER ACTION NEEDED: _____ YES _____X_____ NO

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. L5733
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Shirley M. Walker, P.E.
WATERWAY CROSSED The Mississippi River

INSPECTION DATE October 1, 2002
NOTE: USE ALL APPLICABLE CONDITION
DEFINITIONS AS DEFINED IN THE MINNESOTA
RECORDING AND CODING GUIDE INCLUDING
GENERAL, SUBSTRUCTURE, CHANNEL AND
PROTECTION, AND CULVERTS AND WALL
DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

UNIT REFERENCE NO.	UNIT DESCRIPTION	MAXIMUM DEPTH OF WATER	SUBSTRUCTURE						CHANNEL					GENERAL					
			PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	MASONRY	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	West Pier	18.3'	N	7	7	9	N	7	6	N	N	7	6	7	N	7	8	N	N
	East Pier	17.0'	N	7	N	9	N	7	7	N	N	7	7	7	N	7	8	N	N

*UNDERWATER PORTION ONLY

REMARKS: Overall, substructure units inspected were in good condition with no structurally significant defects observed. Minor hairline cracks were observed in the mortar joints at random locations. The top of the footing at the West Pier was exposed from the midpoint along the west face, around the upstream nose, and to the upstream quarter point along the east face, with up to 4 inches of vertical face exposure at the upstream end. The channel bottom appeared stable with no significant scour, and with steel construction debris scattered around both piers.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.